1: Coon E-5 (1926-1927) 1931 MX3 Rif MX3

PLATE 1

ENVIRONMENT 1

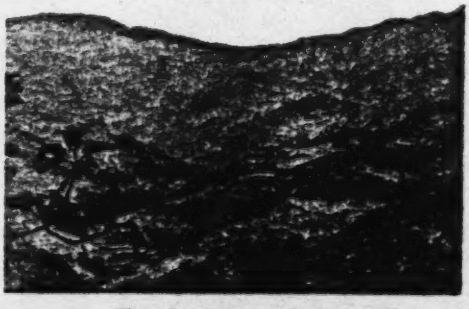
133

Mt. Megga, behind Sheshawen

On the pass between Beni Bu Nsar and Taghzuth

Member of Riffian Ski-Corps on duty in Beni Seddath

Looking down on to the village of el Kelaa, Taghzuth



The valley of the Beni Bu Nsar

[Facing p. 4]

1: Coon E-5 (1926-1927) 1931 MX3 Rif MX3

131 619 **Ghomara.** The third great region is the Ghomara, which extends along the Mediterranean coast from Wed Uringa to Wed Lao, and is separated from the Senhaja by the main mountain crest. It is divided into eight tribes, Beni Ziat, Beni Zejel, Beni Selman, Beni Bu Zra, Beni Mansur, Beni Grir, Beni Smih, and Beni Rezin.

197 Of these Beni Bu Zra retains Berber speech in fairly complete form, and all the others employ Berber words mixed with Arabic. This Ghomaran dialect has never been studied, but seems to resemble Riffian more closely than does Senhajan, in that Riffian and Ghomaran are mutually comprehensible.

131 619 **Other Berber Groups.** This work is confined to a consideration of the Riffians, Senhajans, and Ghomarans because my material covers these groups only, and not because they are the only recognizable Berbers of northern Morocco. In the peninsula which culminates at Tangier and Ceuta lives another group, the Anjera, which although Arab in speech is distinctly Berber in appearance, and which is said to be related to the Riffians; to the south and west of the Senhaja are other tribes, such as the Beni Zerwal, which are certainly not Arab in origin.

The term *Jebala*, from the Arabic word for mountain, is generally used to distinguish the Ghomara, the Arabophone Senhaja, and the other Berber tribes of the northwest from the Riffians and from the Arabs. This term is unfortunately inexact, and hence is not employed in this work to designate any specific area.

PHYSICAL GEOGRAPHY

● 133 The most important topographical feature of this region is the high mountain chain which bends southward from Tetwan into the heart of the Senhaja Sghir, and then resumes an eastward course through the Rif until it fades down into a series of hills in Metalsa and Beni Bu Yahyi to crop up again, thrusting northeastward, in Galiya, and carrying the land of that tribe out into the Mediterranean at the Cabo Tres Forcas. Although the crest of this range is in most places nearly thirty miles from the Mediterranean coast, the shore line itself is rough and craggy, since the mountains carry much of their height to the very water's edge, where they descend with a sharp drop. The mountains are higher in the west than in the east. Adhrar Tidighin, partly in Beni Khennus and partly in Beni Seddath, is the highest in the range, reaching an altitude of 2,549 meters [1] in one peak and 2,455 meters [1] in another; it is covered on the north side with a permanent layer of snow. Although Tidighin is the highest peak, it does not far surpass its neighbors. Between Taghsuth and Beni Bu Nsar, slightly southeast of Tidighin, is another mountain of great height and majesty, called the mountain of Taghsuth, 2,330 meters [1] high. In the Rif itself the highest points of the divide are Kuin, 1,883 meters,[1] and Tizi Uzli, 2,006 meters,[1] both in the Gzennaya. The Jebel Hammam, in Beni Urriaghel, attains about the same height, 1,948 meters, [1] but does not fall in the direct line of the watershed.

The divide itself runs between the Ghomara and the Eastern Arabophone Senhaja; it separates Ktama from Mtiwa of the Rif, and Beni Seddath and Beni Khennus from Beni Bu Nsar (although in truth these three tribes might be said to perch on top of it); runs through Zarket, setting Targuist on one side and Beni Hamid on the other; and cuts through the middle of Beni Amart, along the range of Tizi Ifri, and across the top of Gzennaya, along

[1] Map issued by the Service Géographique du Maroc, Rabat, March, 1926. Scale, 1:20,000.

1: Coon E-5 (1926-1927) 1931 MX3 Rif MX3

133 Kuin, Akhfiligum, and the pass of Tisi Usli, thus placing a portion of Gsennaya in the Nekor drainage along with Beni Tusin and Beni Urriaghel. East of Gsennaya the ridge loses its great importance, and the country sinks down into a flat, arid plain, occupied by Metalsa and Beni Bu Yahyi, while to the north of these tribes it springs up again, pointing northeast and separating the drainages of the two Mediterranean-flowing rivers, the Kert and the Muluya.

In the midst of Gsennaya, at Ihershliyen and Azru Ukshar, the range ceases to be the Atlantic–Mediterranean rainshed, for the ridge passing north and south through Azru and Mellal separates the drainages of the Wergha and the Muluya. Gsennaya is thus the apex of the crest: in it are found the beginnings of three drainage systems, and there the mountains reach their greatest height east of the Senhaja Sghir.

These mountains are said to be of Tertiary origin and to be an extension of the Cordillera Betica in Spain.[1] Marmol describes an active volcano in what must be today Beni Bu Shibet or Beni Beshir.[2] Since his book was written in 1573 and since no tradition survives of a volcano anywhere in northern Morocco, it is quite possible that he was mistaken, since the tradition of so impressive a natural feature would surely have endured three and a half centuries.

The region with which we deal, along with the strip which connects it with the Straits of Gibraltar, is said to have been a part of Europe as late as the Miocene [3] period, and to have been separated from the rest of Morocco by sea. Indeed, the unattractive plain of the Garet, occupied now by the Metalsa and the Beni Bu Yahyi, has every aspect of a withered sea-bottom, and fossils of ocean molluscs have been found in it.

The short distance from the ridge to the Mediterranean littoral is traversed by numerous small torrential streams, perennial only near the mountain tops, where the coat of forest has not yet been wholly hewn off. Another reason for their seasonal dryness is that except during the season of storms the farmers living along the upper reaches lead off all the water in irrigation ditches, leaving none for the people lower down.

The Wed Lao forms the western boundary of the Ghomara; next to the east flow the Wed Tiguisas and its branch the Wed Tasfit, forming the boundary between Beni Ziat and Beni Bu Zra: and between the Tasfit and the Uringa, which form the boundary of the Rif, flow two smaller streams. Wed Seba Zawiat and Wed Mthir.

The Wed Uringa, along three fourths of its course, demarcates Mtiwa of the Rif from the Ghomara, but in its upper section the boundary shifts to the ridge to the west of its drainage. The next important river to the east is the Wed Mestassa, which empties into the sea at Mestassa, skirts the western edge of Beni Gmil, and has its source in the lofty peaks of Beni Khennus. East of the Mestassa flows the Wed Ferrah, or Frah, through the middle of the tribe of Beni Bu Frah, commencing in the mountain north of Targuist. East of this stream runs the Wed Bades, originating between Beni Itteft and Targuist, traversing the area of the former tribe, and emptying at the ruins of Bades opposite the island of Peñon de Velez. Next comes the Wed Buhem, originating in the Beni Hadifa section of Beni Urriaghel and crossing the tribe of Bokoya.

Emptying into the bay of Alhucemas are the two most important rivers of the central Rif, the Ghis and the Nekor, their mouths lying side by side and combining to form a broad

[1] Louis Gentil, *Le Maroc Physique*, pp. 89–90.
[2] Caraval Luys del Marmol, *Descripcion d'Africa*, bk. iii, chap. 84.
[3] Gentil, p. 94.

1: Coon E-5 (1926-1927) 1931 MX3 Rif MX3

delta. The course of the Ghis slants southwestward from Targuist, while the Nekor flows directly northward through sharp canyons from the mountain of Kuin in Gzennaya, to separate, farther along, Temsaman and Beni Tuzin from Beni Urriaghel. On the other side of the promontory of Temsaman empties the Amkaran, or Wed el Kebir, which commences a short distance away in the mountains of Beni Tuzin. Next to the Amkaran lies an unimportant stream called the Tasagin, coming down from the Dhar O Baran in Beni Ulishk. Beyond this there are none but the important arteries of the Kert and the Muluya, the former of which originates in Gzennaya, the seeming umbilicus of the Rif, and the latter of which flows northward from distant Tafilelt, where its head lies near that of the Draa, a lengthy watercourse emptying into the Atlantic nearly opposite the Canary Islands.

Such is the catalogue of rivers, the waters of which are jealously guarded and conserved, and which have been the cause of many of the local wars in the Rif.

The mountains of the Rif are supposed to be fabulously rich in minerals, including coal, iron, gold, and petroleum. None of these, however, have been extracted by the present inhabitants of the country, and hence they do not concern us here. Suspicion engendered by the presence of the minerals does more to hamper travel and research in the Rif than all other factors combined.

VEGETATION

It is too early in the course of Riffian research to give a complete list of botanical species from that country; no systematic botanist, as far as I know, has published any description of its flora. It will therefore have to suffice in this volume to present merely a very fragmentary roster of some of the more noticeable wild trees and bushes, such as readily meet the eye of the traveler, with local names and tentative identifications, made by observation and by analogy with the rest of North Africa.

Conifers

taidha, a tall, straight-growing conifer, with a large globular cone. This tree is much prized for house-building material.

taidha temjda, a similar tree, relatively stunted, with thick, wide branches. The *taidha* is found on the upper slopes of mountains; the *taidha temjda* grows on the mountain-tops and in the passes, where it is exposed to the elements: hence both may belong to the same species. (Plate I shows examples of both.)

Justinard calls the *taidha* a pine.[1] Hanoteau and Letourneau list for Algeria four species of terebinths; *Pistacia terebinthus L.*, *P. Atlantica Desf.*, *P. Lentiscus L.*, and *Rhus pentaphylla Desf.*[2]

takka, another conifer, with a small, compact cone. The wood of this tree is used in making tar. (Perhaps its name is related to the Ntifa word for terebinth.[3]) Justinard calls this a juniper.[4]

afezaz, the scrub juniper (not to be confused with *afezas*). Laoust postulates that the Berber root *zz* indicates the idea of spines or thorns, and cites other words, in Berber dialects, which contain this root and mean juniper.[5]

[1] Commandant Justinard, *Manuel de Berbère Marocain* (*Dialecte Rifain*), p. 48.
[2] A. Hanoteau and A. Letourneau, *La Kabylie*, vol. 1, pp. 82-83.
[3] E. Laoust, *Mots et Choses Berbères*, p. 487. [4] Page 131. [5] Page 523.

1: Coon E-5 (1926-1927) 1931 MX3 Rif MX3

PLATE 2

ENVIRONMENT 2

133

A terrace in the vale of Iberrusben, Gsennaya

The site of the Sunday Market at the confluence of the Bayu and the Tighza, Gsennaya

The Rock of the Ogress, Tiddest, Gsennaya

Olive trees growing at Sidi Misaud on the Beni Ulishk–Temsaman border

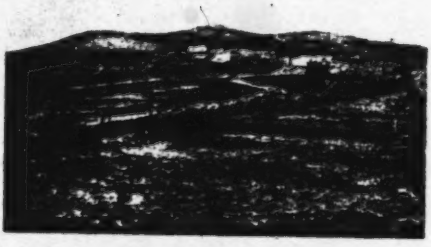
[facing p. 8]

1: Coon E-5 (1926-1927) 1931. MX3 Rif MX3

PLATE 3

ENVIRONMENT 3

133



Relatively flat country, Beni Said

The plain of Beni Ulishk, with the mountains of Beni Tuzin behind

The country back of Ajdir, on the Beni Urriaghel-Bokoya border

The alluvial plain at the mouths of the Nekor and Ghis, Beni Urriaghel

[facing p. 18]

3:Hart E-5 (1953-1954)1954 MX3 Rif MX3

their archaic Berber cultural patterns in the face of an ever-increasing Arabization. For this reason, I use the Berber term *Aith* (sons of) rather than its Arabic equivalent *Banī*, which has become current in the literature. Although a tribesman who does know Arabic will say *Banī* when speaking of his tribe to a stranger, he will employ *Aith* when in conversation with his own people. I have also singled out the tribe of Aith Wuryāghil as the object of this article not only because, at the time of writing, I know it much better than the other Riffian tribes, but because, as it is the largest and most powerful of all of them, it has always taken the leading role in the past history of the Rīf, and it has, on most occasions, called the turn to the other tribes when necessary. The presence of Aith Wuryāghil, with that of Giznāya, in the confederation of the Ṣinhāja during the great Ṣinhāja-Ghumāra war was what won that war for the former group; and in recent times the tribe produced 'Abd al-Karīm, of whom we shall say more later on.

Running in a northeast-southwest direction, the tribal territory, 1028.5 square kilometers, consists, in the north, of an open alluvial plain bordered on the east by the mountains of Tamsamān; this plain overlooks the Mediterranean and forms the Bay of Alhucemas. Further south it gradually ascends into and merges with the brown, barren and eroded mountains which are such a characteristic feature of the Riffian landscape; these are bisected by arroyos and high valleys, and in Aith Wuryāghil they culminate in the rugged massif of Jabal Ḥammām (1948 meters), which is covered with snow in January and February. Vegetation consists largely of scrub and lentiscus bushes. Except in the highest altitudes, rain is infrequent even in the winter; the so-called «levante», coming from Spain, brings it suddenly and in the form of flash floods, which change the two sluggish rivers in the tribal territory, the Ghīs to the west and the Nakūr to the east, into raging, torrents. In the mountains the winters, although not long, are cold, but snowfall is much less than in Aith 'Ammarth or in the Ṣinhāja Srair to the southwest, where the mountains are considerably higher. The rest of the year the climate is warm and usually so dry as to produce only a bare subsistence economy.

4: Hart E-5 (1953-1954)1957 MX3 Rif MX3

Sīdī Bū Khiyār («My Lord the Father of the Cucumber») was, according to tradition, an itinerant *murābiṭ* or holy man from the Sahara who reached the Central Rif completely destitute, without family, servants or possessions. Of when this event occurred, or from what part of the Sahara he originated, we have absolutely no indication. Rifians today say that he was not a *sharīf* (pl. *shurfā*), or descendant of the Prophet, and this is negatively and locally confirmed by the fact that no mention is made of him in the genealogies of the Imrabdhen section (*ar-rbaʿ* or *thakhammasth*, according to the context) of the tribe (*thaqbitsh*) of Aith Wariyāghir, who, despite their sobriquet, are shurfā descended from Sīdī Ibrāhīm al-Aʿraj («My Lord Abraham the Lame»), whose own lineage ascends to Mūlāi Idrīs. We may note here, parenthetically, that although the Rifians make a genealogical and functional distinction between *shurfā* and *murābiṭīn* (pl. of *murābiṭ*), they do not differentiate between them terminologically; in the Rifian dialect of Berber, both are called *imrābdhen*, derived from Arabic *murābiṭīn*.

In any event, Sīdī Bū Khiyār was to become far more important in the religious aspects of tribal life than most of the Imrābdhen, for no organized visits have ever been made to any of the latters' tombs. After settling on the windswept and desolate mountain peak which bears his name, Sīdī Bū Khiyār became famous as a spellbinder who could attract crowds of lesser murābiṭīn from as far as ten to fifteen days' journey away. He never married, and he died without issue on his mountain top; but the name Bū Khiyār is one wich many mountain Rifians are given to this day.

The pilgrimage to Sīdī Bū Khiyār's grave is today a local festival entirely, albeit the most important and significant one in the Central Rif. The only religious brotherhood involved is that of the ʿAlawiyyīn, a recently formed order of Algerian origin, whose members bear no relationship to the saint other than the fact that some of them happen to live in the area, and whose litany is a far more toned-down and sedate affair than those of any of the orders mentioned above, as we shall see.

The tomb of Sīdī Bū Khiyār is situated on the summit which overlooks the Turīrth-Timarzga-Aith ʿAmmarth Pass and dominates the massif of the Jbil Ḥamām, The Mountain of Doves, which, at

4: Hart E-5 (1953-1954)1957 MX3 R11 MX

an altitude of 6500 feet, is the highest point in the whole tribe of Aith Wariyāghir. It is located above the village (*adshār*) of Bū Ma'dān, in the district (*r'ayyith*) of Timarzga. The tomb itself, a simple structure unadorned with the usual white cupola, was, in time, supplemented with a small mosque of mud and stone, today in a state of disrepair owing to the ravages of wind, snow, sleet and ice. The actual pinnacle of the massif is not the site of the tomb proper, but a point about 150 feet above it, called Tamrābiṭ. Upon ascending this point, after a spine-shattering journey by jeep up the tortuously winding *piste* from the Wednesday Market of Aith Turīrth (Spanish *Zoco de Arbaa Taurirt*), one realizes that one is at the top of the Central Rif. Almost all of Aith Wariyāghir is below one to the north, and only one or two of the Azru Uqshar peaks in the tribe of Igzinnāyen to the southeast, discernible in outline on a clear day, are higher. Just east of the tomb-mosque complex is a flat space measuring about 600 feet by 300 feet, used for prayer, and just above and north of this is a small grove of *ādhān* (from, by association, the Arabic for «prayer-call»?) trees; and between the mosque and the tomb itself is a small open area called the *Sūq al-Ṣāliḥin* the Market of the Righteous.

The pilgrimage takes place on 9 Dhū l-Ḥijjah, one day before the 'Aid al-Kabīr or Great Feast of Islam, called *r-'Aid Umqqran* by the Rifians. People come from all over the southern mountain districts of Aith Wariyāghir, as well as from the neighboring tribes of Aith 'Ammarth and Igzinnāyen, to attend it. The greatest number are locals from Timarzga (Jbil, Aith Wariyāghir), after which come those from Aith 'Arūs (Jbil, Aith Wariyāghir), Aith 'Ammarth, Aith Bū 'Avyāsh (Aith Wariyāghir), Zāwīth n Sīdī 'Abd r-Qādir of the Imrābdhen of Aith Ḥadhīfah (Aith Wariyāghir), Mārruwī in Aith 'Abd Allāh (Aith Wariyāghir), Iṣrīḥan in Aith Yūsif w 'Arī (Aith Wariyāghir), and Igzinnāyen. In 1955, all the tribal authorities of the Nkūr qaidate of Aith Wariyāghir (Ait Bū 'Avvāsh and Jbil), as well as the Spanish *interventores* both of Aith Wariyāghir and Aith 'Ammarth, were also present.

By about 10:00 A. M., most of the pilgrims, wearing their best clothes, have assembled on the mountain top, where their first act is to visit the shrine. Merchants are busy setting up their small

5: Blanco Izaga G-4,5 (1914-1945) 1975 MX3 Rif MX3
Aith Waryaghar

000 PART I--MANUSCRIPT DATA ON RIFIAN SOCIOPOLITICAL STRUCTURE

1. STRUCTURAL FEATURES OF RIFIAN SOCIAL ORGANIZATION: ("LECTURE ON RIFIAN CUSTOMARY LAW"), uncompleted MSS., dated December 17-18, 1935.

101 671 A) General Introduction (fragmentary):.....The Berber area of Morocco, or Blad s-Siba, is the land of custom or of customary law, as opposed to the Arab area, or Blad l-Makhzin, which is the land of the Shari'a, or of Islamic Law[1].....

181 1) Berber "virtues" (and Rifian ones) include: a) a zeal for independence; b) a spirit of association (twiza, wuzi'a, dhwara, liff[2]); c) a preference for "democratic" forms of government (councils, "oligarchical" institutions, etc.); and d) a respect for custom[3].

133 134 369 2) A slow descent from the mountains to the plain (what Blanco means here specifically is the relatively rich alluvial Plain of al-Husaima in the lowlands of the tribe of Aith Waryaghar), but without 369 urbanization...There is an indifference to "urban nuclei", which are only visited, and not lived in, except by Europeans. The Rifian's atmosphere is his tribe, and, even more so, his village or local community.

648 671 3) The basic French error in passing the Berber dahir of 1930 was in sending a European magistrate to supervise criminal law proceedings in Berber customary tribunals (in the Atlas Mountains only: translator's note), and this satisfied neither Berbers nor Arabs[4].

177 671 779 4) The Rifian embraced Islam and Berberized it in his "practices and superstitions" (my quotation marks: translator), as he

since the Spanish pacification of the Rif), women's markets came into being either as a concession or by default. Even so, women of the best families still do not attend them as a rule, much as they would probably like to; for the sale and purchase of eggs, chickens and pottery which forms the overt activities of women's markets are in reality, one might say, a disguise for more clandestine transactions: sale and purchase of potions, charms or recipes to induce love, fertility, sterility, and even, in some cases, poisons. Rifian males all know that their womenfolk "know all about such things", but their own knowledge of them is, by comparison, very superficial; and it is thus to their own advantage, in certain respects, to prevent their women from attending. In a manner of speaking, they are successful, for it is only old women, poor women, and women who are locally held in low repute who are market-goers, either to their own markets or to regular ones (the latter of which they have only attended in the last two decades or so).

Women's markets exist today only in the Thimsaman, where there is one (on Tuesdays, Suq th-Thratha, at Swani), and in the Aith Waryaghar, where there were seven in Spanish times: one on Sundays (Suq r-Had) at Iswiqen, mentioned above; two on Mondays (th-Thnain), at Azghar, near Ajdir in the Plain of Alhucemas, and at Isrihan, in what Blanco labels the "originating Jma'th" of the latter; one on Thursdays (r-Khmis) at Swani at the mouth of the Nkur River where it empties into the Bay of Alhucemas; two on Fridays (r-Jum'a), at Aghridh, near Isrihan, and at Suftura, in Ighmiren, of Aith 'Adhiya; and one on Saturdays (s-Sifth) at Aith Qamra. (Of these, only that on Mondays at Azghar, that on Saturdays at Aith Qamra, and the Tuesday market of Thimsaman were still functioning in 1959.) Interestingly enough, there are no women's markets, and there never have been, in the heart of the southern Jbil itself, although those of Iswiqen, Isrihan and Aghridh are all on its northern slope.

Of the other Rifian tribes, the Aith 'Ammarth formerly had a women's market (on Thursdays, r-Khmis, at Ija'umen), as did the Igzinnayen (on Tuesdays, th-Thratha, at Inhanahan), Bni Bu Frah (on Tuesdays at Agni) and Aith Yittuft (in which the day and site of the market in question are unknown to us); but these are all said to have disappeared before the time of 'Abd al-Krim. Sánchez Pérez, then, is essentially correct in localizing women's markets within the tribal territory of the Aith Waryaghar, which was obviously their point of origin.

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117a--The Jbil Hamam, or Mountain of Doves (it is given this Arabic designation rather than the Rifian cognate adhrar n idhbiren), is in every way the mountainous backbone of the Aith Waryaghar, their highest point geographically (with its peak of Adhrar n Sidi Bu Khiyar at 1930 m.) and their point of origin traditionally. With certain notable exceptions (such as the clan of Imrabdhen), all the tribal segments now in the lowland part of Aith Waryaghar point to the Jbil Hamam as their ancestral home; and it was for these, as well as other, reasons, that we concentrated our own research in the southern mountains of the tribe.

000 Ulad 'Abbu and J'auna) and in the Igzinnayen (or Gzinnaya: Bni 'Asim, Bni Yunis, Ulad 'Ali bin 'Aida, Bni Mhammad, Ulad l-Uta, and Imzdurar, of which only the last mentioned retains its Berber name, "mountaineers").

[114] [829] 147--The Branis tribe (Arabic branis, sing. barnus, "burnous") is very probably Berber by descent; but it is, as Blanco notes, entirely Arabic speaking today (as is Igzinnayen's other neighbor, Marnisa), and Rifians consider it "jabalan" rather than as one of their own.

[133] 148--Tizi Usli, "the pass of the bridegroom", is a tribal administration post in the northeastern Igzinnayen, while Azru Aqshar, "bald rock" or "bald mountain", is, at 2010 meters, the highest peak in the Central Rifian area, and is located just north of Tizi Usli, which nestles in its shadow.

[114] 149--Blanco is in error here, for all of Igzinnayen are Rifians, and of Berber origin. Even if they were not, there would in any case be little basis for a (largely artificial) contrast in physical type and/or language and/or institutions; and once again, Blanco is groping with outmoded anthropological theory.

150--As noted, the "Arab-Berber" dichotomy which Blanco draws within Igzinnayen is largely a figment of his imagination. The southern clans of Igzinnayen neither "obeyed" nor "resisted" the Makhzin in pre-Protectorate times, any more than the northern ones or any of the other Rifian tribes did. In fact, aside from Bushta al-Bahdadi's punitive expedition to Ibuqquyen in 1898, the Makhzin tended to leave the Rifians severely alone. Informants say that the sultans Mulay al-Hasan, Mulay 'Abd al-Aziz and Mulay Hafidh all appointed qa'ids and shaikhs in all the Rifian tribes, but such "appointments" were nothing but dahirs which ratified the already existing tribal and clan chiefs. In the Rif, therefore, the notion of "Republik" or siba was essentially characterized by a lack of contact between tribes and central government; and the above-mentioned dahirs merely preserved the status quo.

619 151--Like the Aith Waryaghar, the Igzinnayen are regarded as being divided into either two or five top segments, according to one's informants, although, unlike Aith Waryaghar, the problem of segment discontinuity within the tribe is (virtually) non-existent. The division into two top segments gives us the following: Asht Bu 'Amar and Asht r-Manth. Asht Bu 'Amar is in turn segmented into Asht Yunis and Asht 'Asim; and the first of these, Asht Yunis, is again segmented into Asht Yunis Proper, Asht 'Aru 'Aisa and Asht Mhand, while the second Asht 'Asim, is divided into Asht 'Asim Proper and Asht Findish. Asht r-Manth is segmented into Imzdurar and Asht r-Udha.

The division into five top segments bypasses the level of the top to give us Asht 'Asim, Asht Yunis, Asht Mhand, Imzdurar and Asht r-Udha; and immediately we note a discrepancy between the two systems. In the first, Asht Mhand is given the status of a subsegment of Asht Yunis, while in the second it is a top-level segment or clan in its own right; and the Qa'id Haddu n Muh Amzzyan of Aith Bu 'Ayyash (Aith Waryaghar), who was 'Abd al-Krim's top field commander in the Igzinnayen in 1925-26 and who provided us with the second set of data, told me

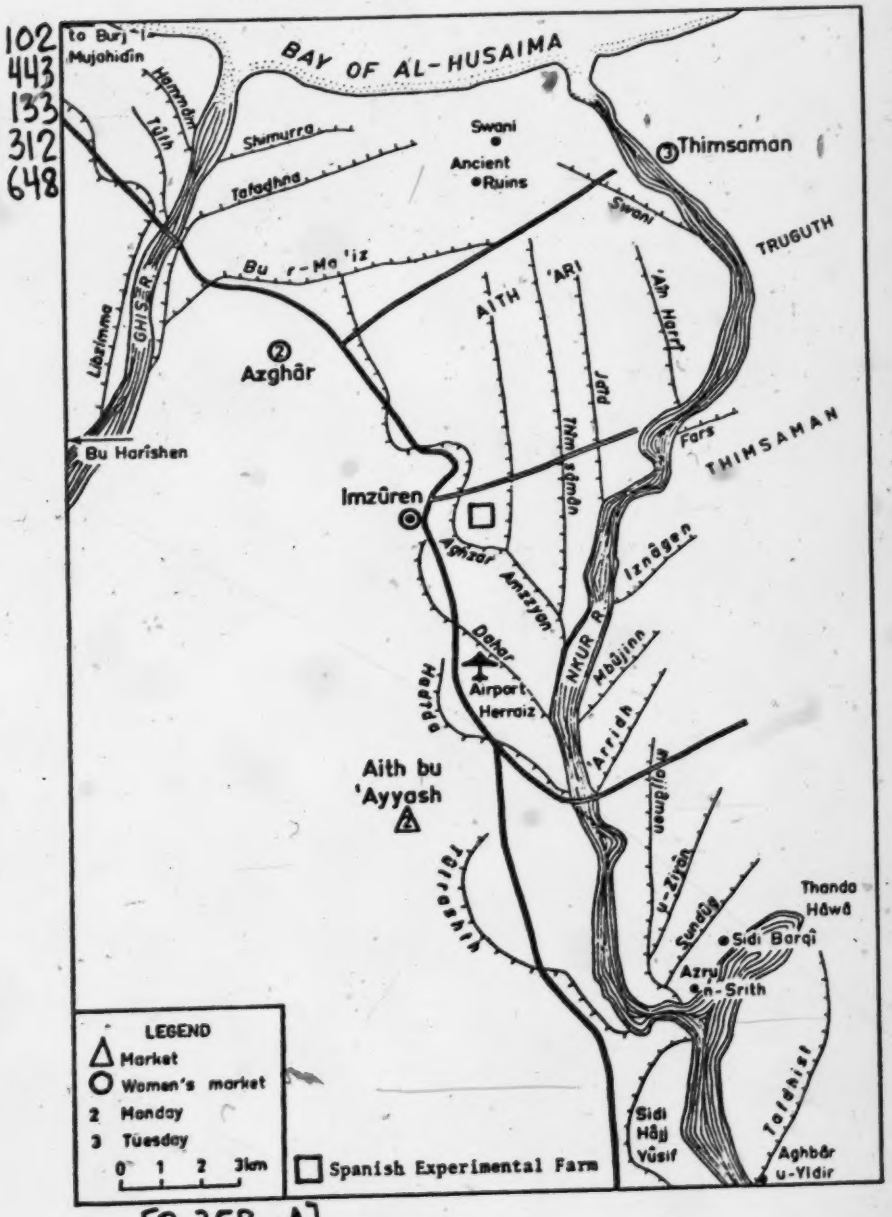
423 675 312 that this would have rendered useless all demands and threats voiced by downstream groupings for the transfer of even a minimal amount of flow, and in our time things have not varied; those upstream use all the water that they can, and those downstream, the overflow; and it would not occur to anybody to vary this procedure, followed since time 312 immemorial. To this procedure is very well adapted the regimen of the rivers in the Rif, in the dry beds of which water does not run on the surface, but rises up only in fixed points, each one of these forming, with the help of improvised dams, the sources or points of origin of successive irrigation ditches, making them seemingly independent.

133 241 [578] In addition, the narrow fissures which form the beds of such torrential rivers, their irregular flow, their devastating overflows and floods, in short, opposed nature and men so that the latter would have some motive for doing this and even need it for their small irrigable crop and the bare necessities of life; for it did not and would not occur to anyone to work or cultivate any more land than that necessary for his own subsistence, as anything else, overflow aside, would have attracted the envy of neighbors and strangers, and this in 675 turn would have led to blows. An association on such a large scale and for such modest objectives was, for this reason, impossible, inefficacious and unnecessary.

312 The river waters, in their upper courses, running between steep banks, scarcely need to be utilized even to a small degree on the minute riverain plots of land. In those beds, water, although actually slight in amount, is in fact overabundant, and land is lacking. Limited to the confines of the ditch by the topographical conditions

5: Blanco Izaga G-4,5 (1914-1945) 1975 MX3 Rif MX3
Aith Waryaghar

BLANCO MAP II (1939) - PLAIN OF AL-HUSAIMA



[P. 358-A]

15. THE QANUN OF THE LOWER GHIS RIVER (AITH WARYAGHAR):

312 From this river, the longest of those which bathe the Central Rif
[135] (more than 70 km.), as with its companion and eastern neighbor the Nkur, only the surface waters are used, and very imperfectly, by the Rifians in the small meanders which its narrow basin forms. For the
[648] Rifians there is too much water and not enough land. Up to the present, the Spanish protectors have not attempted the slightest modification nor the study of the Ghis basin and its regimen with utilitarian ends in mind. It is a wealth which, like so many others, is lost. There is too much water and nevertheless the Rif is thirsty.
[132] The Rifian spends the whole year looking at the sky, an attitude which has become contagious to the protectors, imploring a few drops to fall in order to save his miserable <u>winter</u> (author's italics) harvest[125].....

In all the long basin of the Ghis one does not perceive the handi-
[487] work of man. Neither bridges nor acqueducts, neither dams nor any installations to raise up its waters. Paths wind along its pebbly and steep banks to hide themselves in the dried-up stony bed. Small
[402] and winding irrigation furrows timorously make haste to return suddenly the flow which they secretly absorbed, under the shelter of thickets, after (providing water to) move some small and rudimentary turbine mill. Only at the height of Targist, military techniques with their transportation of water give such a pessimistic sight a chance to change.
312 It is necessary to descend kilometers and kilometers down the steep bed
133 of the river, to about some three kilometers from where it empties

312 into the sea, in order to really listen and take notice at last of
133 the song of the Ghis, the activity and human ingenuity, the fertilizing mission of the water, the utility of the same, the gentleness of the countryside, the density of the population, the happiness (by comparison) of the orchards and gardens, the wealth and well-being, the convenience for (administrative) functionaries, the advantages of technology and the necessity of associating oneself with humans.[126]

312 In its long course the Ghis proyides the water to turn 55 Rifian
402 turbine mills (1935).[127]

312 In Bu Harishen, on the left bank of the Lower Ghis, upstream from
[103] the bridge over the river, is where this river begins its well-performed work, bored by its useless rambling, acquires freedom, jumping from its bed to spill itself over in equal parts into the three principal ditches, l-Bzimma, "the tied-up"[128], on its left bank, and Bulma'iz and Thafadhna on its right. The regimen of these ditches is indicated below and their mean longitude is some six kilometers.

[103] Sidd Dharga nl-Bzimma (l-Bzimma): "the tied-up", which takes its name from that of the ancient ruined city, al-Mazimma[129], on its left bank. Its flow is one-third of the permanent intake of the dam at
[212] Bu Harishen. There is a written document which regulates distribution of its water and proves its rights to property.[130] It empties (into the Mediterranean) at the height of the ruined castle of the Mujahidin[131] on the beach, in front of the old Peñón de Alhucemas (Isle of al-
[402] Husaima). It moves a mill belonging to the Qa'id Sriman r-Khattabi and to Muhand Ushshan.[132]

432 (against this sale which was put into effect) after the sight, pleasure and knowledge of his capability as required.

Both parties concerned know the value of the present act, and, by virtue of this, the undersigned witnesses testify to the declarations of both, for both buyer and seller are in a perfect state of legal capacity (of sound mind and memory) to agree; and the witnesses know (805) them both by sight and by name. In the first part of Rabi' al-Thani of the year 1347 (August 19, 1928).

000 Servant of his God, 'Abd al-Salam bin 'Ali al-Ajdiri, may God be benevolent toward him, amen (signature). Servant of his God, 'Abd al-Karim bin 'Umar al-Khattabi, may God be benevolent toward him, amen. (signature).

Stamp of approval of the qadi: Both 'udul have borne witness (with respect to the above), which he (i.e. the qadi) accepts and to which he gives faith. Servant of his God, Muhammad bin al-Hajj Ahmad al-Bu-Dhimmusi[178], may God be benevolent toward him. Amen. (Signature).

20. SUMMARY OF IRRIGATION:

312 133 In a few words we may show the present day importance and interest of irrigation in the Aith Waryaghar, as tourists from time to time cross this splendid Plain of al-Husaima....

This Plain, under rudimentary cultivation even today (1938), as no one has succeeded or even proposed to amplify it, is completely criss-crossed by an intricate net of tiny irrigation ditches which in general do not feel the touch of water more than every eight days, and some even every eighteen days; and this for winter cultivation.

6: Joseph E-5 (1965-1966) 1975 MX3 Rif MX3

7

Chapter 1

SOCIAL HISTORY

133 The Rif is a chain of rugged mountains stretching along the Mediterranean coastline from the Strait of Gibraltar to the Moulouya River. Composed almost entirely of sedimentary and metamorphic rock, it is an extension of the Cordillera Penibotica of Spain. While the mountains are somewhat lower than those of the Atlas, they are just as steep. The invaders of Morocco invariably skirted the Rif and proceeded through the Taza Corridor. If the mountains are foreboding, the coastline is no less so. [504] The entire stretch from Río Martin to Melilla is devoid of ship shelter except for the break in the bay of Alhucemas, the small cove at Puerto Capaz, and the deltas of Wad Lao, Rhis, Nekor, and Bados.

133 131 The area which will be discussed is located in the center of this mountain chain in what is now called the Province of Alhucemas. The Tamazight-speakers of this region lived, until very recently, in a social and economic backwash. The presence of a rugged, inaccessible coast isolated them from Mediterranean contact except for the few points mentioned above. The mountain chain, on the other hand, served as an effective barrier to the interior of the country. The Rif was thus isolated from the rest of Morocco by natural boundaries. The social and political consequences of this shall be discussed below.

633 [504] The area is administered today from the small port and provincial capital of Alhucemas. The growth of this urban center, fishing port, and tourist attraction is but a recent [175] phenomenon. The city, founded in 1925 with the invasion of a Spanish fleet, has been the focal point for whatever innovation that has occurred in the Central Rif in this century.

133 361 Directly behind the city of Alhucemas is a flat plain. Although the land here is rich it was uninhabited prior to the Spanish because the terrain was indefensible during times of feuds. The original population was situated in the foothills [112] and higher mountains. Here homesteads were scattered and since they also served as garrisons or fortresses they were located on hills or ridges which could be defended militarily.

133 The area is not well served by rivers, the principal ones being the Rhis and the Nekor. The former rises in the Sonhaja area and empties into the Mediterranean at Alhucemas. The latter starts in Igzinnayen territory to flow along the border of the Beni Wariyaghar and the Beni Tuzin, emptying into the bay at [312] Alhucemas. Both these rivers and their tributaries are used [161] for irrigation and the population density is higher along them. There are also a good many natural springs (generally regarded as holy sites) and wells have been successfully dug in some of the valleys.

132 Rainfall varies annually and at times disastrously. At the weather station in Alhucemas during the decade 1946-1955, rainfall ranged from 8.5 inches to 16.9 inches. Although the

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3

CHAPTER I

INTRODUCTION: THE "NORTHERN ZONE"

MOROCCANS refer to their country as al-Maghrib al-Aqsa: the "Far West" of the Muslim world (fig. 1). From 1912 until 1956 it was divided into three zones: French Morocco, Spanish Morocco, and the International Zone of Tangier. In March, 1956, a joint declaration was signed by representatives of France and

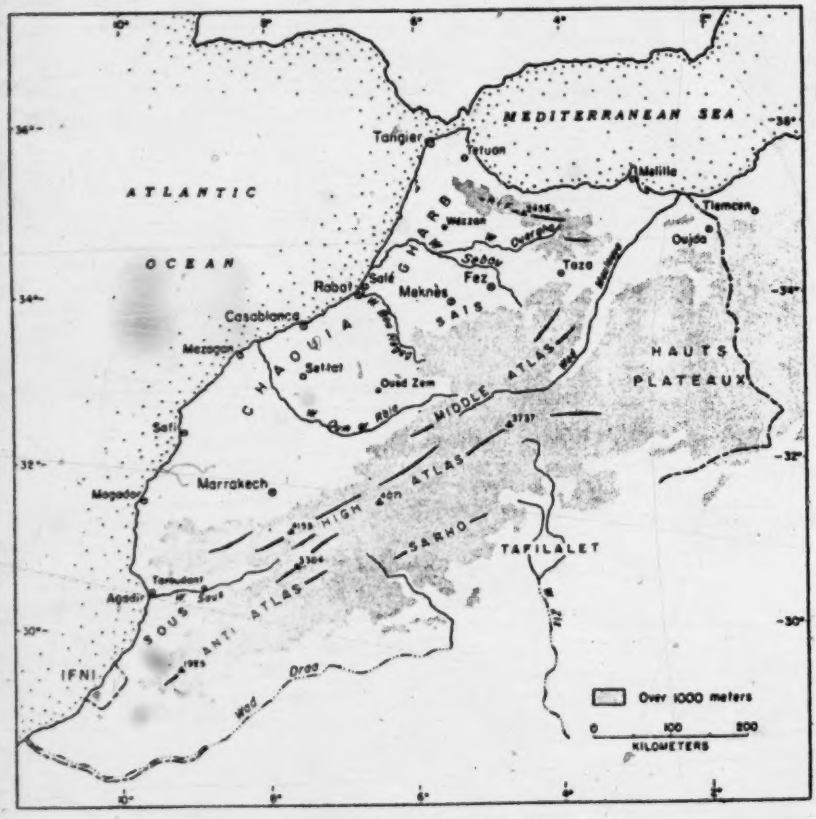


Fig. 1. Morocco: orientation map.

Morocco, restoring independence. Within a month Spain resigned its protectorate, and before the end of the year the international regime was abolished. Moroccan governors promptly replaced the European administrators. Spanish Morocco ceased to function as a separate political unit, although it continued to be recognized as the northern zone. In this study the expressions "northern Morocco" and "northern zone" refer to the area previously under Spanish and international control.

7: Mikesell K-4,5 (1955-1957) 1961

MX3 Rif MX3
Jebala MX2
Senhaja MX4

RSH
S
101
102
619
131
133

Fig. 8. Northern Morocco: tribal divisions

/p. 2/

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3
Senhaja MX4

presence of an influential family of *shurfa*, alleged descendants of the Prophet, who encouraged a shift from Berber to Arabic speech. Rifian is spoken in the hamlet of the Aith Azza, but the weekly market of Targist has functioned traditionally as a trading center for the Sanhajan tribes, especially Zarqat. The Aith Mazduwi also appear to be of mixed origin, for both the Sanhajan and Rifian dialects are spoken by this tribe.

Sanhajans and Ghmarans generally regard all tribes to the east of them as Rifian, but among the Aith Bu Yihyi and other tribes of the Kert and Moulouya valleys this appellation is restricted to the tribes of the basin of Wad Nkour. It is useful to think of a zone of transition between the "true Rif"—Aith Wariyaghar, Ibuqquyen, Aith Ammarth, Igzinnayen, Aith Tuzin, Thimsaman—and the eastern frontier of the northern zone. The Ulad Stut are intrusive bedawin, like the Khlut of the Atlantic littoral. The remaining tribes may be described as "eastern Rifians." Two minor confederations are recognized within this group. The first, "Iqar'ayen" in Rifian and "Gal'aya" in Arabic, includes five tribes: Aith Bu Ifrur, Aith Sidar, Imazujen, Aith Bu Gafar, and Aith Shikar. The second, called "Garet" or "Gart" in Arabic, is formed of Ibdharsen and Aith Bu Yihyi. The dialect of the Aith Iznasen is intelligible to most Rifians, but there seems to be general agreement that the Rif, even in a broad sense, does not extend beyond Wad Moulouya.

Land and Livelihood

In the total context of geography, northern Morocco should be described as an isolated and generally inhospitable area. Moving from the Atlantic coast toward the east, the traveler is confronted with an abrupt transition from alluvial plains and terraces to a wild and chaotic zone of steep slopes and narrow ridges. The eastern lowlands are more favorable from a physiographic point of view, but the Rif chain creates a rain shadow, and the tribesmen of the eastern Rif, Garet, and Gal'aya suffer from meager and erratic rainfall. Cut off to the south by the Rif chain and to the north by inhospitable coasts, northern Morocco cannot compare with Greece, Italy, southern France, or Andalusia as a breeding place for advanced civilization. It is a rampart and a place of refuge.

The tribesmen of northern Morocco share an agricultural heritage derived in part from contacts with Phoenicians, Romans, Arabs, and Europeans. Farming methods are primitive, for the mountain tribes learned centuries ago how to grow the maximum amount of food on tiny terraces, and the size of their fields and the steepness of slopes discourage mechanization. Barley and wheat constitute the most important crops. Wherever water is available for irrigation, the cereals, which are dry-farmed, are supplemented by summer crops of maize, legumes, and vegetables. Horticulture provides precious additional food, and during the spring, when cereal stocks are low, raisins, figs, and nuts are staples. In the semiarid lowlands east of the Rif chain, only cereal farming is possible, and famine may be experienced when rains are meager or arrive too late. The great seasonal migration from this area toward the French farms of eastern Algeria resulted from an imbalance between population and food supply.

Variations in crop combinations and diet are partly conditioned by environmental factors, and hence will be considered in greater detail in chapter ii. A

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3

Chapter II

ENVIRONMENT

133 Most of northern Morocco is mountainous. The dominant surface feature is the Rif mountain chain, which curves in a great arc from the Strait of Gibraltar to the hills of Aith Said.[1] The main artery of east-west traffic in Morocco is the Taza corridor, south of the Rif chain (fig. 1)[A]. The important north-south routes run along the Atlantic coast or follow the valley of Wad Moulouya. Innumerable ridges lead to the Mediterranean, but that coast has few beaches and little shelter. The exposed and straight Atlantic coast is even more hostile to maritime life. Enclosed within the bounds of a rugged mountain range and inhospitable coasts, most of northern Morocco is isolated. The narrow valleys and ridges of the Rif chain "form a secluded mountain region, difficult of access, which at all times enabled its Berber inhabitants to keep their necks free of foreign yoke."[2]

The Rif Chain

The Rif chain consists of a series of arcs, pierced by gorges trending at right angles to the main structural lines (fig. 4)[B]. The northern versants of these arcs have undergone extreme dissection. Streams fed by heavy rainfall have cut deep canyons, and most interfluves are narrow, knifelike ridges. The overlapping folds of this chain are similar to those of the alpine mountains in Europe, notably the Sierra Nevada, with which the Rif was joined in early Tertiary time.[3]

Geologists divide the Rif into three zones (fig. 5):[C]

1. A zone of metamorphic rocks, mainly of Paleozoic age, flanks the coast from Ceuta to Puerto Capaz. This zone constitutes the southern flank of the Betico-Rifian massif, which was broken into two segments when the Strait of Gibraltar was formed. Although countless navigators have viewed this coast, it is scientifically one of the least-known segments of the Mediterranean littoral.

2. A zone of calcareous rocks is mostly of Tertiary age. Its terminal point is Jbil Musa, one of the Pillars of Hercules. From Jbil Musa a high wall of limestone runs southeastward to Shawen, curves to the sea, and then reappears as the Karstic highland of Ibuqquyen. Several peaks exceed 1,000 meters in elevation, and Jbil Tisuka and Jbil Leshab are slightly more than 2,000 meters high. The structural break at Tetuán is the only gap in the wall. The gorge cut by the antecedent Wad Lao is too narrow to be used as a trade route. Most of this range is a formidable barrier.

3. A broad zone of younger sedimentary rocks is schistose for the most part, but includes some strata of sandstone. The formation name "Flysch" has been

[1] "Rif" is used here in the popular sense to refer to the mountainous area of northern Morocco. In Maghribi Arabic *er-rif* means a fertile or cultivated zone on the banks of a river, along a coast, or on the edge of a desert. It can be translated also as "margin" or "fringe."

[2] Theobald Fischer, "Marokko: eine länderkundliche Skizze," *Geog. Zeitschr.*, 9 (1903), 67.

[113] [3] The best geological map of northern Morocco is the *Bosquejo geológico de la zona del protectorado español* (Madrid: Comisión de Estudios Geológicos, 1952). Brief accounts of the physical geography of the area appear in "Maroc septentrional," *Livret-guide des excursions A 31 et C 31, Congrès Géologique International* (Rabat, 1952); Horst Mensching, *Marokko: die Landschaften im Maghreb* (Heidelberg: Keysersche Verlagsbuchhandlung, 1957), pp. 148–154; and G. Maurer, "Les pays rifains et prérifains," *L'Information Géographique*, 23 (1959), 164–171.

A, B, C. [See pp. 1, 14-15 respectively--Analyst]

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3

applied to this zone, which includes northern Morocco's highest mountains and principal watershed.[4] Adrar[5] Tidighin, highest of the Sanhajan mountains, rises to 2,456 meters and is snow-capped during six months of the year (plate 1, *b*).

Margins of the Rif Chain

From Bab Taza northward the karstic mountains of Bani Hassan form the principal arc of the Rif chain. West of this range the highland complex consists of a series of outliers trending northwest to southeast. Several of these ridges are more than 1,000 meters in elevation, and the highest peaks, Jbil Sugna and Jbil Buhashim, exceed 1,500 meters. A line drawn from Tangier to a point about 30 kilometers east of Ksar al-Kebir marks the division between the Rif highlands and the hills and terraces of the Atlantic littoral.[6]

The eastern margin of the Rif highlands is difficult to delimit. The main arc extends to a point about halfway between Alhucemas and Melilla. Mountainous terrain is found farther to the east, but its structure and lithology are different. The Rif chain is composed almost entirely of sedimentary and metamorphic rocks. Volcanism is evident from the eastern edge of the Nkour Valley to the Algerian frontier. The largest volcanic feature is Adrar Gurugú (886 meters), a composite cone of basalt and andesite behind Melilla. A number of smaller cones dot the plains of Garet and Gal'aya, and the promontories at the bay of Alhucemas and the Melilla peninsula are formed of trachyte and andesite. A large part of Gal'aya and Garet was submerged in Tertiary time. This lowland area includes the flattish plains of recent alluvium extending inland from Nador, and hill sections formed by recent stream dissection of Tertiary and Pleistocene sediments. The small range of Ikibdhanen appears to be an anticline. This range and the Kar-Kar highland were formed prior to the period of Rifian orogeny.

The Three Coasts

Most of northern Morocco is isolated by the Rif mountains and the inhospitable Mediterranean coast. The Atlantic façade, even more hostile to maritime life, has been the country's best rampart. Since these two shores are of little value, the coast facing Gibraltar has played a preponderant role.

Straight and shelterless, the Atlantic façade is indented only by mediocre harbors and poor estuaries. A series of marine terraces, mostly of Pliocene or Miocene age, dominates the littoral from Arcila to Larache. Quaternary dunes line the coast from Larache to and beyond the old interzonal frontier. The plain of Wad Lukkus is the largest zone of alluvial soil on the Atlantic coast and the only area in northern Morocco where agriculture is almost entirely mechanized. The small coastal plain on the frontier between the former Spanish and international zones is poorly drained and swampy most of the year.

Cliffs of Cretaceous or Eocene sandstone line the Strait of Gibraltar from Cape

[TEXT CONTINUED ON PAGE 17]

[4] The best description of this area appears in the log of the excursion sponsored by the Société de Géographie du Maroc in March, 1957; see *Notes Marocaines*, 9–10 (1957), 43–46.

[5] I use the Berber *adrar* rather than the Moroccan Arabic *jbil* because this peak is in an area of Berber speech.

[6] I am omitting the pre-Rifian foothill zone, immediately south of the area shown on the maps. For a description of that zone see Maurer, *op. cit.*, and Jean Dresch, *Essai sur l'évolution du relief dans la région prérifaine* (Paris: Larose, 1933).

7: Mikesell K-4,5 (1955-1957) 1961

MX3 Rif MX3
Jebala MX2
Senhaja MX4

Fig. 4. Northern Morocco: relief.

7: Mikesell K-4,5 (1955-1957) 1961

MX3 Rif MX3
Jebala MX2
Senhaja MX4

102
131
133

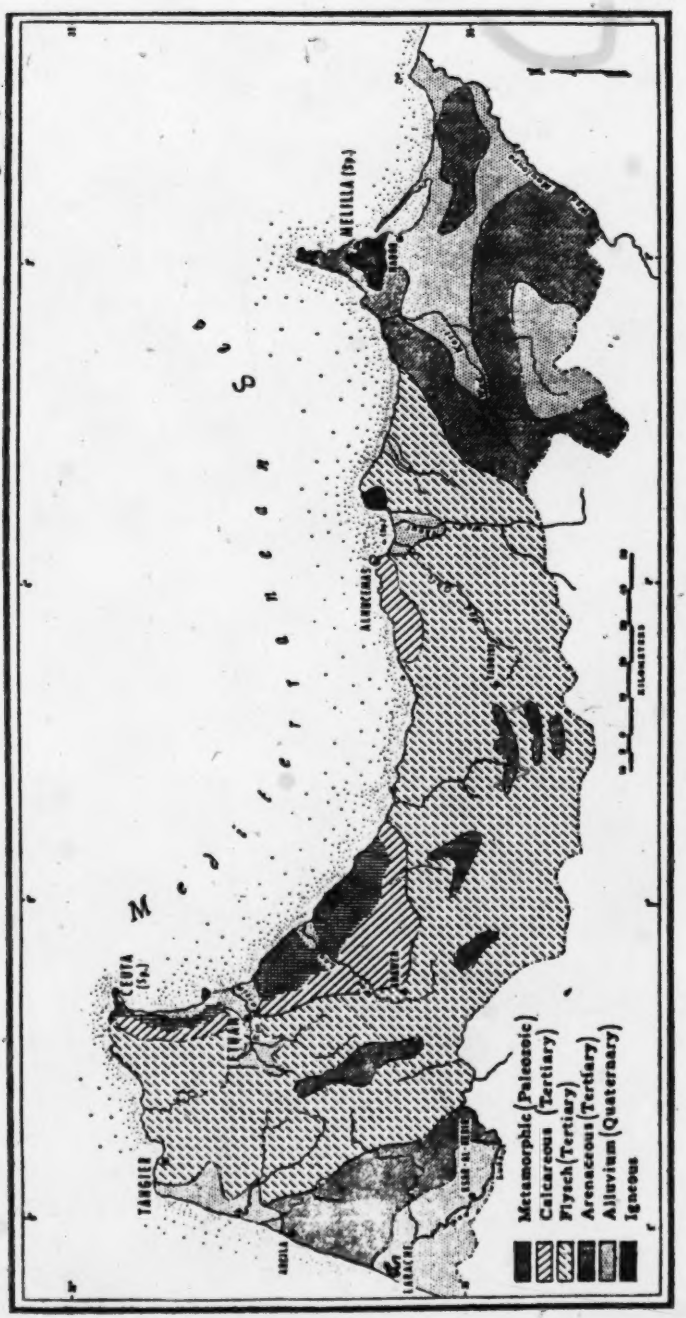


Fig. 6. Northern Morocco: surface geology.

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3

Spartel as far as the western flank of Jbil Musa. Today this coast commands one of the world's great trade routes. For the Ancients the Pillars of Hercules marked the end of the known world, the very limits of civilization. In medieval time the Arabs rarely ventured into the Atlantic, and in the great age of exploration the Occidental Muslims limited their activity to piracy. For Morocco this coast has been a bond with Spain. By this almost terrestrial function the Strait of Gibraltar assumed a decisive role in Moroccan history. It was to guard the southern flank of Betica that Emperor Claudius created the province of Mauritania Tingitana in A.D. 46. The proximity of the two shores allowed Islam to conquer the Iberian peninsula, and the Spanish, in turn, to extend their influence to the Moroccan coast.

On the Mediterranean coast Morocco faces the great highway of civilization, but that shore, almost completely devoid of shelter, has never had an important maritime activity. A few fishing boats operate on calm days, but their sole function is to carry nets and seines a short distance beyond the surf. No road or trail of any significance follows this coast. Immediately east of the delta of Río Martín (Wad Martil) the coastline consists of a series of high cliffs cut by deep barrancas (pl. 1, *a*). This pattern, except for the small coastal plain formed by the deltas of Wad Ghis and Wad Nkour, continues as far as Melilla.

Climate

The climate of northern Morocco is of the Mediterranean type. In its simplest form this type of climate is characterized by (1) concentration of precipitation in winter and spring, the summers being nearly or completely dry; (2) warm to hot summers and mild winters; and (3) a high percentage of the possible sunshine for the year. From the Atlantic coast eastward to about 4° west longitude, irrigation is unnecessary for cereal crops. Within this zone the average annual precipitation ranges from 400 mm. to more than 1,000 mm. The extent of this range reflects the extreme contrasts of exposure and elevation. The drier zone, with precipitation totals of 400 mm. or less, begins on the eastern edge of the Rif chain.

Figure 6 was compiled from published records of forty-five weather stations for the decade 1946–1955. The former date is the earliest that can be used if conditions in the entire zone are to be compared. The records of a few stations extend to earlier years, and the Catholic Mission in Tangier has recorded weather observations since 1912. But data have become available for the interior of the zone only since the end of the Second World War.[1]

Precipitation decreases from north to south on the Atlantic coast, and from west to east on the Mediterranean coast. Tangier, with 810 mm. (31.9 in.), is the wettest coastal station in the zone. At Arcila, only 40 km. to the south, the total is 611 mm. (24 in.). On the Mediterranean coast, Ceuta with 560 mm. (22 in.) contrasts with Wad Lao with 460 mm. (18.1 in.), Puerto Capaz with 330 mm.

[1] For observations recorded prior to 1944, see *Resumen de las observaciones meteorológicas efectuadas en la zona de Marruecos hasta 1944* (Tetuán: Imprenta del Majzen, 1946). The years 1944–1946 are covered in a supplement published in 1947. Since the latter date, weather records have been published monthly in the *Boletín Mensual Climatológico del Servicio Meteorológico en Marruecos* (Tetuán: Imprenta del Majzen). For data on precipitation elsewhere in Morocco see *Atlas du Maroc*, Planche 4 *a*, "Précipitations annuelles" (Rabat: Comité de Géographie du Maroc, 1958), and the "Notice explicative" that accompanies the map.

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3

Drainage

132 Drainage basins are small in this area, for the watershed is close to the sea. The
133 seasonal rate of flow follows the seasonal rainfall, but with a lag in time that varies with the slope, the vegetation, and the permeability of the rock. Spate follows rainfall where impermeable rocks form the basin, more slowly where the basin is of permeable limestone. All the Mediterranean streams may be roaring torrents at some period from October to May; but most of them dry up during the long summer drought. The valleys of some of the larger streams, like the Ghis and Nkour, betray their Mediterranean regimen by a double bed: in summer a narrow channel is cut below the broad rocky shelf which is the winter bed. Wad Ouergha draws off most of the drainage from the Sanhajan highlands; it is the largest stream flowing from the Rif chain, and one of the sources of irrigation water in the Gharb coastal plain (fig. 1). The basin of Wad Lukkus includes most of the Atlantic drainage. Surface streams are rare in the calcareous zone. The only stream that flows through the limestone mountains is the Wad Lao, which follows an antecedent course; but Wad Hajara, Wad Khemis, and Río Martín (Wad Martil) are fed by springs issuing from the base of this range. The area between Wad Nkour and Wad Moulouya has only one large stream, Wad Kert, and it receives little nourishment after it leaves the highlands. Wad Moulouya, from the distant Ayache Mountains of the High Atlas, is northern Morocco's great exotic stream. This stream and Wad Lukkus constituted the only natural segments of the boundary between French Morocco and Spanish Morocco.

Plant Domains

137 The vegetation of North Africa can be divided into (1) a Mediterranean domain, where forest and shrubs predominate; (2) a domain of "steppe," where forest is confined to highland enclaves in the midst of a predominant cover of grass and herbs; and (3) a domain of highland vegetation, which includes a subalpine formation with some trees and, only in the Moroccan Atlas, an alpine formation
[132] without trees. Saharan vegetation penetrates Barbary at only two points: in the Hodna basin of Algeria and on the plains extending inland from the Gulf of Gabès in Tunisia. Figuig, Ksar as-Suq, Zagora, and Goulimine, all within the political limits of Morocco, receive less than 200 mm. of precipitation per year, but the records of these stations do not show the variability indicative of true desert. The Moroccan territory south of the Atlas chains forms part of the "pre-Sahara" of French terminology.[1]

In terms of this classification, all but a small part of northern Morocco falls within the Mediterranean domain. No peak in the Rif Mountains rises above timberline, and only a small area can be called subalpine. Grassland is confined to one area on the eastern edge of the zone. This area, in the lower Moulouya Valley, is one of the driest parts of northern Morocco, but it is not certain that the presence of steppe vegetation can be attributed solely to meager precipitation. The dominant species is *Stipa tenacissima* (Arabic *alfa*). This hard tussock grass

[1] For a brief description of vegetation in all North Africa, see Jean Despois, *L'Afrique du Nord* (Paris: Presses Universitaires de France, 1949), pp. 80–96; and Louis Emberger, "L'Afrique du Nord-Ouest," *Unesco Arid Zone Research*, VI, "Plant Ecology" (Reviews of Research) (Paris, 1955), pp. 219–249.

[113]

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3

delta, but it becomes progressively rarer toward the eastern semiarid sector of this zone. Pistacia wood is highly prized as a source of charcoal, and this fact alone may explain the plant's degraded appearance in the hills south of Tangier.

Pistacia rarely forms a pure stand. Several of the other plants found in palmetto scrub could be described as weeds, for they appear mainly in fallow fields. *Asphodelus microcarpus, Urginea maritima, Daphne Gnidium,* and one or more species of *Asparagus, Ononis,* and *Papaver* are prominent among them. In areas where most of the surface is cultivated, as in the Fahs territory south of Tangier, these plants, together with thistles and scattered clumps of palmetto, constitute all but a small part of the total inventory of vegetation. On rocky knolls and alluvial slopes too steep for cultivation, these plants grow among *Pistacia, Calycotome, Lavandula,* and the oleaster. The percentage of thorny plants is high. Besides *Calycotome* and thistles, *Carduus, Smilax,* and *Rosa* are found.

Dense shrub formations are rarely seen on the thickly settled Atlantic versant. One may walk unimpeded anywhere in the zone bounded by the Atlantic coast, Tangier, and Ksar al-Kebir. The thick shrub growth on the Mediterranean coast near Wad Lao contrasts sharply with the open formations on the Atlantic littoral. In the former area, *Cistus ladaniferus, C. albidus, Erica arborea, Pistacia lentiscus,* and *Arbutus Unedo* combine to form an impenetrable thicket. The limestone mountains of northern Morocco are almost bare of shrub or tree growth. From Ceuta to Wad Lao the eastern horizon is dominated by a great wall of limestone, almost completely devoid of soil. The prevalent whiteness is disturbed only by scattered clumps of palmetto and spiny gorse (*Ulex parviflorus*).

In the area covered by palmetto scrub the persistent riparian plant is the toxic *Nerium oleander.* It may be accompanied by *Crataegus, Myrtus,* and *Arbutus,* but in most of northwestern Morocco the oleander is the only plant on the banks of streams. The presence of *Alnus, Populus, Salix,* and *Vitex* along stream channels in the Sanhajan highlands may be explained by the persistence in that area of other trees, especially cedar, juniper, and oak, which have been adequate thus far as a source of fuel and building material.

In the drier eastern sector of northern Morocco, palmetto scrub grades into a thorn scrub dominated by *Zizyphus lotus,* a spiny and xerophytic member of the buckthorn family (Rhamnaceae). It is difficult to draw a line between these two formations. Isolated clumps of palmetto are found as far east as the Moulouya Valley, and zizyphus extends up the valley of Wad Ghis as far as Targist.

Well adapted to aridity and continentality, *Zizyphus lotus* has become the dominant plant of Morocco's semiarid plains. Clumps of zizyphus are conspicuous within most of the area mapped as thorn scrub. This plant may grow three meters high, but is most often seen as a shrub. It is deciduous; and, during the dormant winter season, gray and seemingly lifeless clumps of zizyphus are a characteristic feature of the landscape. Its branches are widely used as fence material, and this practice enhances the contrast between the semiarid sector of northern Morocco and the wetter western zone, where *Opuntia* is planted as a hedge. The fleshy drupe of zizyphus is collected wherever it grows; when cereal stocks are exhausted, "lotus bread" is an important food."

" *Zizyphus lotus* is occasionally planted in Andalusia, Portugal, and Sicily, but in northern Africa the fruit is collected from wild plants. Aug. Chevalier, "Les jujubiers ou zizyphus de

7: Mikesell K-4,5 (1955-1957) 1961

MX3 Rif MX3
Jebala MX2
Senhaja MX4

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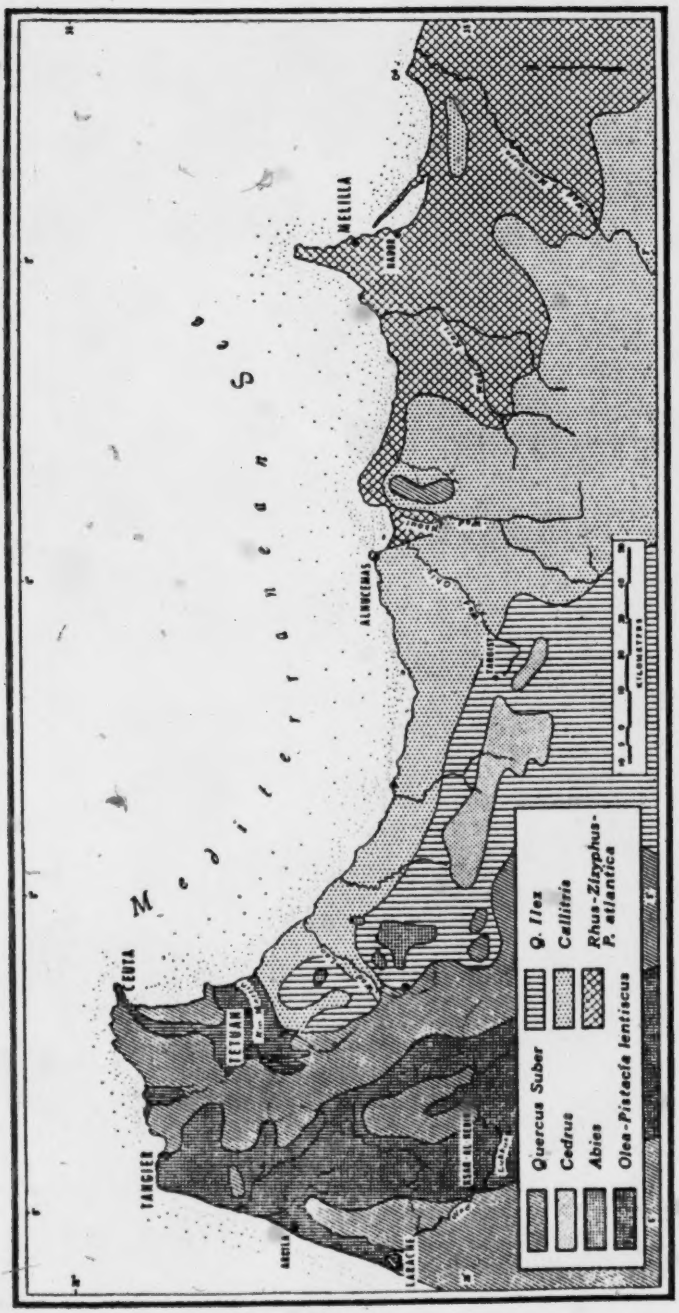

Fig. 27. Northern Morocco: inferred primordial distribution of forest.

/p. 109/

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3
Jebala MX2

south of Tetuán. There are at least a hundred oleaster groves in the area west of Ceuta and Ksar al-Kebir. In some areas oleasters mark every cemetery. Faced with this evidence, we can hardly avoid the inference that the primordial cover of the lowlands of northwestern Morocco was a woodland formation of oleaster and pistacia, and that the present cover of palmetto scrub represents degradation.

Figure 25, *c*, shows a protected stand of holly oak. The central part of the sacred grove consists of tall trees. *Pistacia lentiscus* and *Juniperus Oxycedrus* form a ring around the protected trees. Holly oaks are scattered throughout the central highlands (cf. fig. 8), but closed stands similar to the one depicted here are found only on sacred sites.

In figure 25, *d*, the evidence suggests, not a retrogression from forest species to scrub, but, rather, that two species which usually appear as shrubs, *Pistacia lentiscus* and *Chamaerops humilis*, may have an arborescent form. The density of the protected formation and the height of its components differ markedly from the scrub cover of the surrounding land.

The cluster of cork oaks shown in figure 25, *e*, is preserved in an area of extensive clearing. Most of the nearby land has been burned during the last decade. The only conspicuous plants are *Cistus monspeliensis* in fallow fields and *Nerium oleander* along stream channels. This cluster of trees gives some indication of the plant cover of the area before it was cleared, and indicates the course of regeneration (cf. pl. 9, *b*).

In figure 25, *f*, a shrine is marked by two plants, an oleaster and a fig tree. This sketch illustrates on a small scale what the others show in greater detail. Most of the area surrounding the shrine is cultivated. Fallow fields are covered with *Asphodelus microcarpus*, *Urginea maritima*, and palmetto. The nearest oleaster, seven kilometers away, also grows on a sacred site.

Extent of Deforestation

Trends in plant ecology, viewed in the light of human relationships, take one of two courses, improvement or deterioration. The evidence examined thus far clearly indicates deterioration. What is the magnitude of change? This question cannot be answered in detail. Change is perceived through comparison, and the only reliable source of plant data is the visible pattern of today. Figure 26 gives a synoptic view of the distribution of forest. Figure 27, the basis for comparison, shows inferred primordial or potential forests. The first map is objective; it is a cartographic record of the distribution of forest in the sixth decade of the twentieth century. The second map is subjective, and its usefulness is conditioned by the quality of the evidence presented thus far.

The details of these maps are less important than their general outlines. The implication is clear that the present wooded area constitutes only a small part of the primordial forest. Many forest species, now stunted and widely spaced, may once have been taller and more closely spaced. Under undisturbed conditions the exceptionally xerophytic or heliophilous species would probably be confined to sunny slopes in the western sector or be limited to the semiarid eastern plains. Under optimum conditions the area covered by pyrophytic shrubs would be greatly reduced, and there is no reason to believe that the primordial cover

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3
Senhaja MX4

would have included a large proportion of thorny plants. The exceptionally mesophytic species, *Abies pinsapo*, *Cedrus atlantica*, and *Quercus pyrenaica*, would presumably be restricted to the mountains even if all destructive activity came to an end. But moderately xerophytic and heliophilous trees, the oleaster and the evergreen oak, would occupy larger territories. Under favorable conditions the Barbary thuya would probably be taller and more closely spaced, and the formation described as thorn scrub would be a xerophytic woodland, dominated by *Pistacia atlantica* and *Rhus pentaphylla*.

If cutting, browsing, and burning ceased, most of the area now covered with palmetto scrub would eventually be clothed with forests of oleaster, cork oak, and holly oak. The primordial ranges of oleaster and cork oak would be determined by edaphic and climatic factors. The cork oak, which cannot grow on calcareous soils, would occupy the Pliocene terraces of the Atlantic littoral, the sandstone outliers of the Rif chain, and the slopes of intermediate elevation in the schistose highlands. Some connection may have existed between the cork forests of the central highlands and the small stand of *Quercus Suber* in the mountains immediately east of Wad Nkour. A solitary cork oak grows on a sacred site near the summit of Adrar Gurugú (885 meters). Recent dunes on the Atlantic and Mediterranean coasts probably were once covered with *Juniperus phoenicea*.[*] In heavy clay soils the cork oak would give way to *Olea europaea* and *Pistacia lentiscus*, which would cover the lower slopes of the limestone mountains also. The sacred groves west of Ceuta and Shawen exemplify the natural state of this formation.

At higher elevations in the limestone mountains the natural forest was probably dominated by holly oak. It is necessary to postulate such a forest even though there is little evidence of it today. The agents responsible for the destruction and mutilation of *Quercus Ilex* have already been described. As we have noted, this tree is tolerant of most soils and has the widest range of any Moroccan tree (fig. 7).

The natural province of the Moroccan fir would be about the same as its present range, above 1,500 meters in the limestone mountains. At present this genus is restricted to the mountains east and southeast of Shawen. The only other peak in the calcareous chain high enough to support fir forests is Jbil Kelti (1,927 meters). Destructive processes, especially browsing by goats, have reduced the density of the remaining stands, but it is not likely that fir forests covered any lowland area in historic time.

Changes of greater magnitude appear to have taken place in the cedar forests. The lower limit of this tree overlaps the upper limit of cultivation (pl. 6, *a*). Retreat is especially evident on the northern slope of Adrar Taghzut (fig. 28). At present the lower limit of the forest on this slope is at about 1,800 meters, but a single majestic cedar grows on the site of a shrine (Sidi Abd al-Grifar) in the bottom of a deep valley, 600 meters below the main stand. In the valley of Wad Ouergha, protected cedars are found at even lower elevations. In the

[TEXT CONTINUED ON PAGE 113]

[*] The red juniper is still scattered over the dunes between Rabat and Larache, but has been replaced by herbaceous growth and the Aleppo pine on the Mediterranean coast. On dune vegetation, see J. Ruiz de la Torre, "La vegetación natural del norte de Marruecos," *Notes Marocaines*, 9–10 (1937), 23–33; and Louis Emberger, *Notice phytogéographique sur une partie de la meseta marocaine septentrionale* (Montpellier: Causse, Graille, and Castelnau, 1931).

A, [See p. 130--Analyst]

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3
Jebala MX2
Senhaja MX4

bottoms of valleys, low nocturnal temperatures, caused by air drainage, probably favor the cedar; nevertheless, on many slopes the forest line appears to be 300–500 meters above its natural position.

Cedar forests do not regenerate unless pasturing is suppressed and there is an opportune cycle of wet years. Moreover, the subsoil and parent material must be loose enough to favor the development of seedlings and yet compact enough to retain moisture. A further prerequisite is that there must not be a thick cover of competitive shrubs. A single deforestation may drastically upset the natural equilibrium; if disturbance continues, recovery may be impossible. The mantle of cedars on relatively inaccessible slopes gives some indication of the appearance of the primordial forest (pl. 10, *a*). Figure 29 shows the trend of retrogression. On gentle slopes, undisturbed stands are dense, dark, and relatively free of underbrush. Steeper slopes, exposed to greater insolation, have an understory of shrubs and oaks. Burning or cutting followed by pasturing eliminates the cedar and reduces the oaks to scrub form. If disturbance continues, the plant cover degenerates to a sparse scrub of *Genista quadriflora, Juniperus Oxycedrus,* and *Cistus laurifolius.*

It is difficult to delimit the primordial pattern of the cedar forests. Forests probably existed on Jbil Kelti (1,927 meters), Jbil Sugna (1,600 meters), and Jbil Buhashim (1,681 meters), for a few cedars still grow on these peaks. The absence of cedars from Jbil Khsana (1,695 meters) is puzzling, since this peak receives abundant precipitation, and is composed of sandstone and schist, which weather into deep soils. At present no cedars appear east of Adrar Tizi Ifri, but they may once have clothed the highest peaks of the eastern Rif, including Adrar Hamam (1,930 meters) and Azru Akchar (2,011 meters). It cannot be proved that the cedar once grew beyond its present range, but the pattern of succession suggests that some stands may have been completely destroyed.*

The theory was presented, in chapter ii, that both the Aleppo and the maritime pine may be relicts which have been encouraged to advance by the destruction of competitive growth. If this notion is sound, the area originally covered with pines must have been even smaller than the present stands. This interpretation helps to explain the presence of pines in degraded forests of cedar and fir. However, human interference has probably caused a reduction of some stands of Aleppo pine, particularly on the Melilla peninsula and in the mountains southeast of Shawen. Disturbance might initially have encouraged expansion and then forced a new retreat. It is difficult to enlarge on this idea, for the existing stands of pine are too small and widely scattered to be placed accurately on the maps.

Prolonged disturbance and exploitation of the Barbary thuya have diminished the density of the remaining stands and reduced many trees to shrub form. The natural range of thuya in the western half of the zone can be traced without much difficulty. At higher altitudes on the Mediterranean versant, increased precipitation and lower winter temperatures favor cork oak and holly oak. On the Atlantic versant, climatic factors alone delimit the range. It is more difficult to trace a

* Louis Emberger, *Aperçu général sur la végétation du Maroc* (Bern: Hans Huber, 1939), (ref. to map), seems to regard the primordial range of the cedar as essentially the same as the present range. Ruiz de la Torre, *El matorral en Yebala,* pp. 22–23, cited in note 41, suggests a natural extension to include the highest peaks of Ghmara and Jbala.

A. [See p. 134--Analyst]

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3
Jebala MX2

practice to allow sheep to graze on stubble, many slopes are completely bare when the first rains fall. Erosion is retarded during spring and summer when a part of the runoff is diverted into irrigation ditches, but the irrigation systems promptly disintegrate at the beginning of the rainy season, and runoff again follows the network of gullies (pl. 11, *a*).

Gullying is most severe in the hilly areas of the Rif. The basins of Wad Ghis, Wad Nkour, and Wad Kert show an intricate pattern of short, steep slopes. "Ghis" means "mud" in Arabic, and most of the mud comes from the denuded highlands. The lower course of each river is joined by deeply entrenched tributary streams cutting through old fans and terraces. In Targist, Thimsaman, and Tafarsith the best farms are on fragments of Pliocene conglomerate, isolated from one another by deep ravines. Badland topography covers most of the area between Wad Nkour and Wad Kert. This may be described as an erosion-induced hoe-culture, for slopes are so badly dissected that it is no longer possible to use plows. The desperate effort to produce grain is abandoned only when the harvest does not repay the investment in seed. Cereals are sown in gullies and on nearly vertical slopes. The Spanish learned to their dismay that hungry Rifians try to cultivate even the roadbeds. The plains of Garet and the lower Kert constitute islands of alluvium in a sea of denuded terrain. Serious erosion becomes evident as soon as one passes to older terrace and residual soils. The hills of Ikibdhanen and the volcanic eminence of Gurugú are as bare as the limestone peaks.

The pattern of gullies and rills continues into the hills of Jbala and Ghmara, but the most serious problem in these areas is sliding. The roads from Tetuán to Tangier and Shawen are blocked by slides every year. In Anjra and Fahs one is never out of sight of a slide scar. Gullying is less serious than in the eastern sector, but streams are slightly entrenched even in the rolling country south of Tangier, and the marine terraces between Arcila and Larache are cut by deep barrancas.[13]

[13] René Raynal, "Bodenerosion in Marokko," *Wissenschaftliche Zeitschrift der Martin-Luther-Universität Halle-Wittenberg*, 5 (1956–1957), 885–894.

7: Mikesell K-4,5 (1955-1957) 1961 MX3 Rif MX3

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a. An active gully in the eastern Rif (Aith Said).

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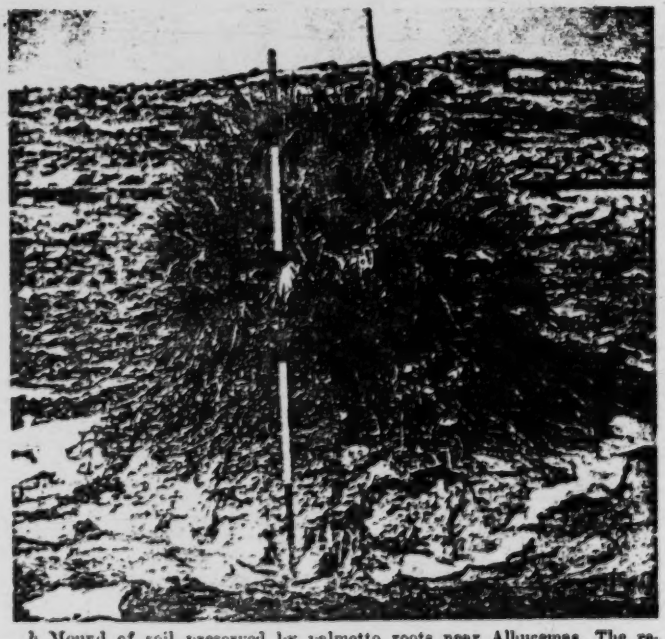

b. Mound of soil preserved by palmetto roots near Alhucemas. The remainder of the slope has been eroded down to limestone bedrock. (Each unit of scale is equal to one foot.)

Ref m2

[village of Ulad 'Abd el-Mumin]

[278] soon died. Someone had poisoned him, not out of malice but as part
813 of a scientific experiment—to test a new batch of poison before using it on the intended human victim. This feeling for science is strong among the Riffians. Once in a local feud a warrior shot a hydrocephalic opponent, not because he was a dangerous foe but in order to see what was inside his head. At great risk of life the warrior crawled over an exposed bank to retrieve the body. With his kinsmen he carried it to the mosque, where the schoolmaster trephined the grotesque skull. Draining out some of the liquid, he tasted it with his finger. "It is a little salty," he said. Then they all went back to their fighting.

133 The village where this took place was hardly a village at all, since it
361 consisted of only thirteen houses in 1926. These were scattered along
621 both sides of the small but tumultuous mountain stream called the Water of Iherrushen, just above where it joined a larger river, the Bayu, which flowed swiftly out of a perpendicular-walled canyon. As one sees this country from above, the flattest ground is near the crest of the divide; consequently the villages are more frequent here than where it is steeper lower down. The upstream people also get the first use of the water, vital for irrigation.

346 If we look closely we will see that one of the houses is a mosque.
368 It has no minaret, but a white flag flying from the roof peak pro-
173 claims its holy purpose, which the whitewash on the porch and
621 around the outer rims of the windows confirms. Legend has it that the ancestor of the inhabitants of this village, one 'Abd el-Mumin (in Arabic al-Mu'min, from whom they and the village derive their name, Ulad 'Abd el-Mumin) walked up the waters of the Iherrushen one afternoon just as the sun was setting over the divide to the west, his wife and his cow and his dog wading with him. Silhouetted against the sunlight he saw this mosque, newly built and empty, its door open, standing before him. Faced with this miracle he scuffed off the grass sandals with which he had been protecting his feet from the sharp stones, and entered the holy place to pray. He and his sons hewed and walled terraces along the valley, felled some trees and planted others, and all lived peacefully until the valley was full and men fell to quarreling over fruit trees, women, and water.

621 The twelve houses which we saw held ten men with their thirteen
595 wives, nineteen sons, and fifteen daughters. That three men had two wives at once is no wonder, since six out of nine of their [illegible]

2: Montagne--280 E-5 (c.1921-1928) 1930 MW11 Shluh
Rif MX3

/Left side of map facing p. 208 in the original source/

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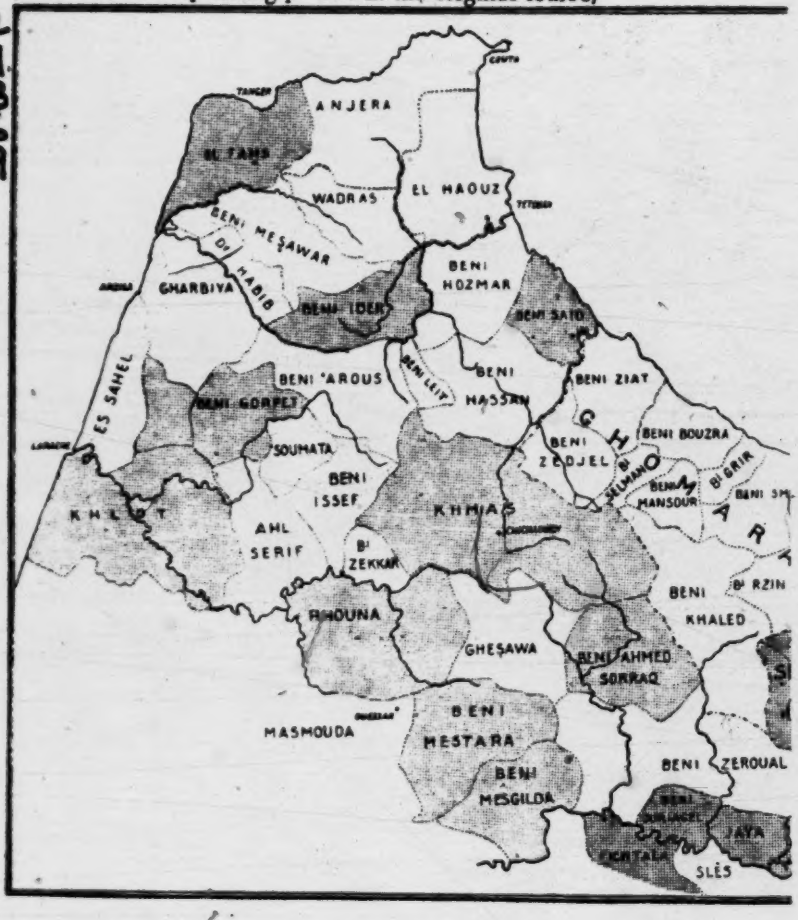

2: Montagne--281 E-5 (c.1921-1928) 1930 MW11 Shluh
Rif MX3

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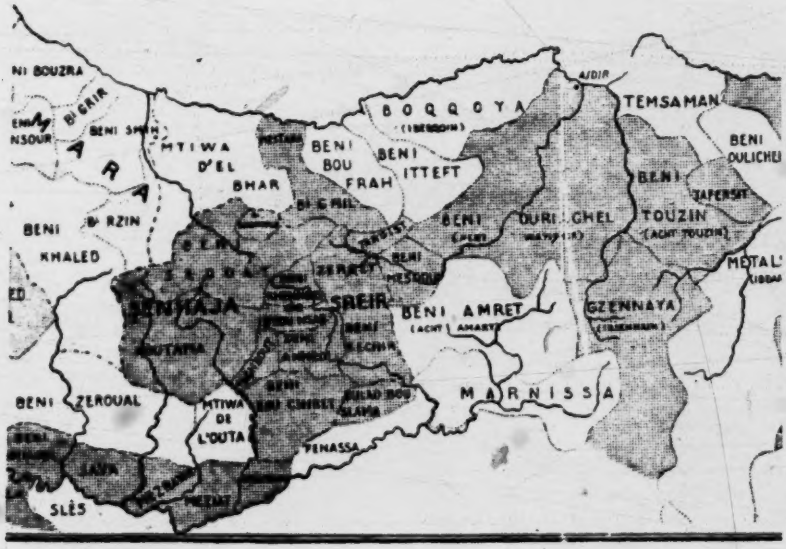
The two Leffs of the North of Morocco in the 20th century
The territories of the Tribes of the Senhaja àlam are shaded; those of the Tribes of the Ghomara àlam are in white

Scale 1/800,000



/"Sreir" is spelled "Srair" in the text./

2: Montagne--282 E-5 (c.1921-1928) 1930 MW11 Shluh
Rif MX3

/Right side of map facing p. 208 in the original source/

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